

TSYSHKIN, Ya.Z. (Moskva)

Characteristics and possibilities of automatic pulse systems.  
Izv.AN SSSR.Otd.tekh.nauk.Energ.i avtom. no.2: Mr-Ap '60.  
(MIRA 13:4)

1. Institut avtomatiki i telemekhaniki AN SSSR.  
(Pulse techniques (Electronics))

PESCHANSKIY, Ivan Stepanovich, prof., doktor geogr. nauk;  
TSYSKOVSKIY, E.S., red.; KOTLYAKOVA, O.I., tekhn. red.

[Study of ice and ice technology] Ledovedenie i ledotekhnika. Leningrad, Izd-vo "Morskoi transport," 1963. 345 p.  
(MIRA 16:10)

(Ice crystals) (Sea ice)

06212  
80V/64-59-6-4/28

5(3)

AUTHORS:

Tayskovskiy, V. K., Levina, M. I.

TITLE:

Synthesis of Plasticizers on the Basis of Higher Acids Containing Acids of Isomeric Structure

PERIODICAL:

*Khimicheskaya promyshlennost'*, 1959, Nr 6, pp 481 - 483 (USSR)

ABSTRACT:

In connection with the planned production increase of substances of high molecular weight there will arise a greater need for plasticizers. These are mainly produced from dicarboxylic acids such as phthalic acid, adipic acid, and sebacic acid (Ref 1). Since these acids are rather expensive it has been tried to replace them by higher fatty acids of an iso-structure. The fatty acids produced by the only method now at hand, the one developed by Koch (Ref 2) are, however, too expensive. The authors now suggest a method providing for a direct oxidation of highly isomerized paraffin hydrocarbons. The raw material used was a petroleum fraction freed from aromatic compounds (200-300°) and containing approximately 55% isoparaffin hydrocarbons, as well as the same fraction freed from the n-paraffins by means of carbamide (Table 1, data of both fractions). In the near future large-scale production of the former fraction will probably be taken up, since it constitutes a by-product of the cleansing agents (RAS). As had been expected, acid mixtures with

Card 1/2

Synthesis of Plasticizers on the Basis of Higher Acids  
Containing Acids of Isomeric Structure

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different characteristics were obtained in the oxidation of the two fractions (under equal conditions) (Table 2). The former fraction (with the n-paraffins), when oxidized, resulted in acids (Table 3) which could be separated by vacuum distillation into three fractions ( $C_5-C_9$ ,  $C_5-C_{13}$  and  $C_5-C_{16}$ , the latter up to 62-69%). Esters of these fractions were produced, and their properties compared with those of dibutyl phthalate (Table 4). Two of the esters produced were tested as plasticizers for mixtures on the basis of a nitrile caoutchouc SKN-26 (Table 5, test results) by A. S. Novikov of the Nauchno-issledovatel'skiy institut rezinovoy promyshlennosti (NIIRP) (Scientific Institute of Rubber Industry). The results were favorable. At present experiments are carried out aiming at an application of the two esters in the processing of polyvinylchloride, acetyl cellulose, nitrocellulose, etc. There are 5 tables and 5 references, 4 of which are Soviet.

ASSOCIATION: VNIIneftekhim

Card 2/2

"APPROVED FOR RELEASE: 08/31/2001

CIA-RDP86-00513R001757320014-1

TSYTKO, S.P.

APPROVED FOR RELEASE: 08/31/2001

CIA-RDP86-00513R001757320014-1"

BT R

26

7847. The Transition of a Catalyst Into the Heterogeneous State and the Basic Causes of This Phenomenon. (In Russian.) B. K. Tryskovskii and N. A. Kiseleva. *Zhurnal Prikladnoi Khimii*, v. 24, May 1951, p. 527-531. Discusses the above. Data are charted and tabulated.

TSYSKOVSKIY, V.

Films (Chemistry)

Technology of the synthesis of film-forming ester derivatives during high-temperature kerosene oxidation. Zhur. prikl. khim. 20 No. 3, 1947.

9. Monthly List of Russian Accessions, Library of Congress, June 1953. Unclassified.

26

Varnish. A. K. Izykovskii. U.S.S.R. 65,970, March 31, 1940. The varnish base is made from petrolatum by oxidizing and neutralizing with  $\text{CaO}$ . The base is mixed with S and mineral spirits. M. Hosh

ASAC SLA METALLURGICAL LITERATURE CLASSIFICATION



10

ca

PROCESSES AND PROPERTIES INDEX

Carboxylic acids. V. K. Tsyskovskij and A. I. Shpak. U.S.S.R. 66,113, Apr. 30, 1946. Carboxylic acids are produced by oxidation of petroleum hydrocarbons, e.g., petrolatum, with air. In carrying out this reaction the nature of the walls of the reactor is of paramount importance. In order to produce an oxidation product having a high sapon. no. and at the same time a relatively low ether no. and a min. of polymerization, the oxidation is carried out in an Fe app. where the inner walls of the reaction zone are coated with a layer of Pb free of As or with a layer of Pb-Sn.

M. Hosh.

ARM-55A METALLURGICAL LITERATURE CLASSIFICATION

FROM: 0311111

0311111 OR CHV 111

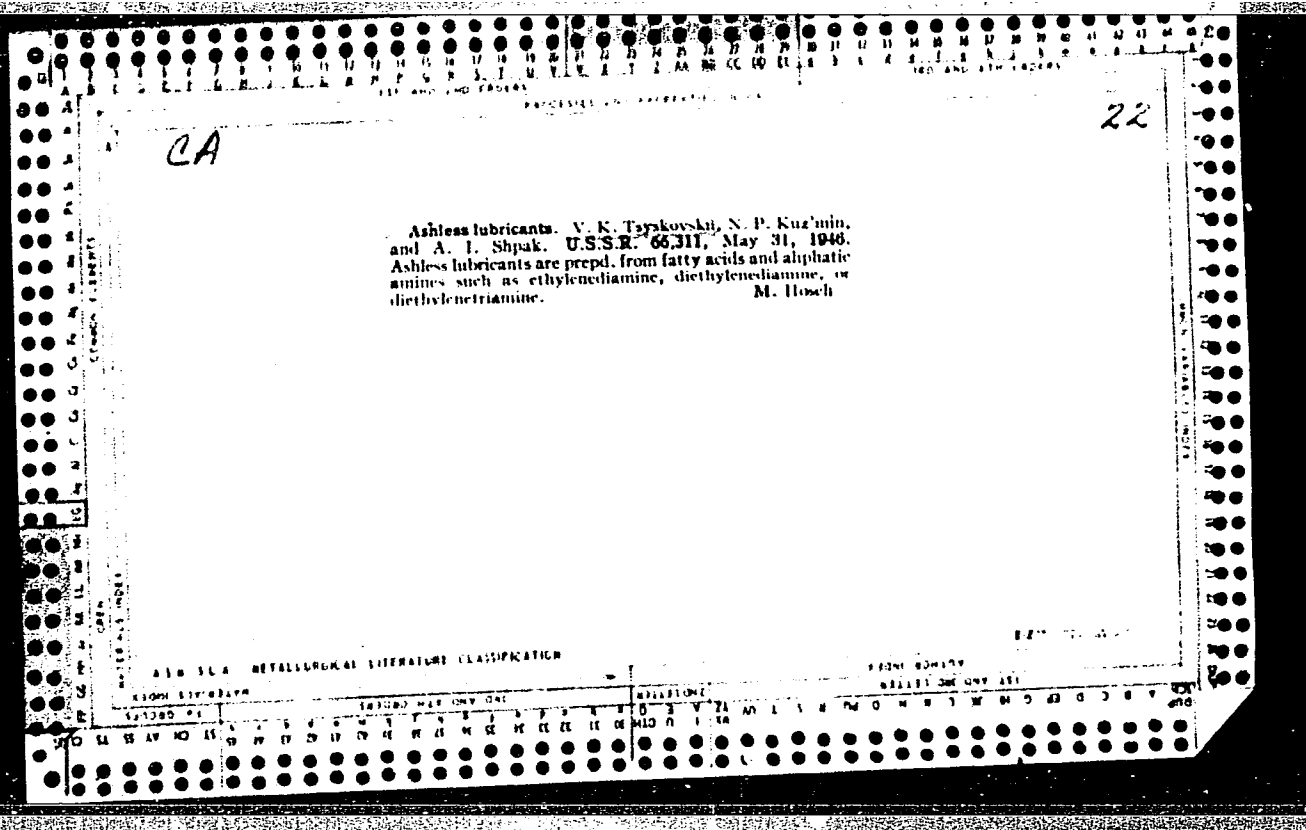
22

26

Abstracts: A. Ya. Drobinskii and V. K. Lysskovskii  
 USSR 66,249, Apr. 30, 1946. In the condensate in-  
 tained on cooling of the steam vapor mat. formed in the  
 oxidation of oil products, the insol. fatty acids are saponified  
 by a alkal. means without removing the unsaponifiable  
 constituents, and then are pptd. with a Mn salt or similar  
 saponifiable metal salt.

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

SECTION	SUBSECTION	CLASSIFICATION
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*CA*

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**PROCESSES AND PROPERTIES INDEX**

Viscous lubricating oils. V. K. Tsytkovskii, U.S.S.R.  
60,869, Aug. 31, 1946. Mineral oils are utilized in a re-  
actor having Al walls at 140° in the presence of  $\text{Al}_2(\text{CO}_3)_3$   
and S. M. Hosh

**ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION**

LITERATURE	SUBJECTS	CLASSIFICATION	REMARKS
1	2	3	4
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1ST AND 2ND ORDERS																										3RD AND 4TH ORDERS																									
PROCESSES AND PROPERTIES INDEX																																																			
2A																										22																									
<p>Catalytic oxidation of crude-oil products. V. K. Tyyskorski and A. I. Shpak. U.S.S.R. 65,837, Aug. 31, 1946. To obtain carboxylic acids, unpurified oil products are air-blown at 160-170° in an iron app. in the presence of catalysts until the reaction becomes exothermal. The oxidation products are coagulated by adding cold water, the solids are allowed to settle out and are removed, and the remaining liquid is further oxidized. The walls of the reaction zone are coated with PbO or PbSO<sub>4</sub> free of As.</p> <p>M. Houch</p>																																																			
<p>450-550 METALLURGICAL LITERATURE CLASSIFICATION</p>																																																			

*pa*

Drying-oil substitute. V. K. Tsaykovskii, U.S.S.R.  
67,122, Oct. 31, 1946. Kerosene is oxidized by air at  
150-70° in the presence of Mn naphthenate. The oxida-  
tion product is allowed to settle out in the cold and is  
used for the prepn. of a drying oil by heating or blowing  
with air in the presence of Cu or Mn carboxylate, and dis-  
solving in a suitable solvent. M. Hosh

ASB SLA METALLURGICAL LITERATURE CLASSIFICATION

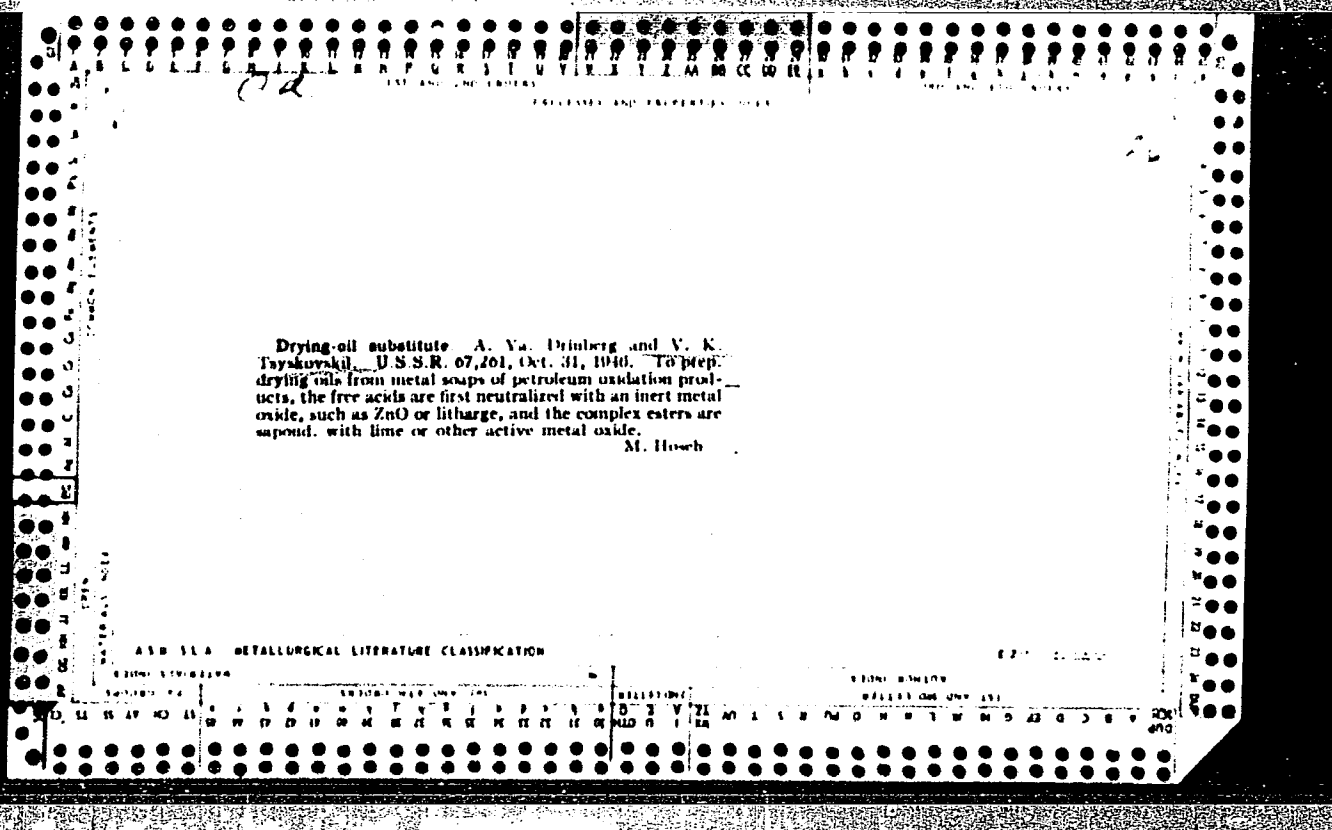
27

CA

Semiliquid lubricants. V. K. Tsynkovskii, A. I. Shpak, and T. I. Pylaeva. U.S.S.R. 67,135, Sept. 30, 1940. Petroleum oxidation products are heated with linseed or cottonseed oil for approx. 10 hrs. at around 150°.

M. Haseh

ASAC 510 METALLURGICAL LITERATURE CLASSIFICATION





*Ca.* *27*

Siccatives. A. Ya. Drinberg and V. K. Tsykovskii  
 U.S.S.R. 67,619, Dec. 31, 1940. The oxidation product  
 of high-mol. petroleum hydrocarbons obtained as described  
 in U.S.S.R. 66,113 (C.A. 41, 2071c) is saponified with meta  
 oxides or hydroxides. M. Hosh

ASS-SLA METALLURGICAL LITERATURE CLASSIFICATION

LITERATURE										EXTRACTS										REFERENCES																			
LITERATURE										EXTRACTS										REFERENCES																			
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1ST AND 2ND ORDERS		PROCESSES AND PROPERTIES INDEX		1ST AND 2ND ORDERS	
CA				22	
<p>Improving mineral lubricating oils. V. K. Tsykavskii and T. I. Pylaeva. U.S.S.R. 67,622, Dec. 31, 1948. To improve the quality of oil a product contg. lactones is used. This product is obtained by oxidation of purified kerosene, mixing the oxidation product with nondrying vegetable oil, and air-blowing the mixt. at 120-30° until a benzene-sol. product is formed. Addn. to U.S.S.R. 67,122 (C.A. 42, 52415). M. Hoesch</p>					
<p>ASS-5LA METALLURGICAL LITERATURE CLASSIFICATION</p>					
1ST AND 2ND ORDERS		1ST AND 2ND ORDERS		1ST AND 2ND ORDERS	

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*pd*

Varnishes. V. K. Tsyskovskii, E. A. Alekseeva, and  
A. I. Shipak. U.S.S.R. 67,623, Dec. 31, 1946. Nitro-  
cellulose soln. is mixed with kerosene oxidation products  
obtained as described in U.S.S.R. 67,112 (C.I. 42,6275).  
M. H.

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

GROUP 1: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

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GROUP 5: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

GROUP 6: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

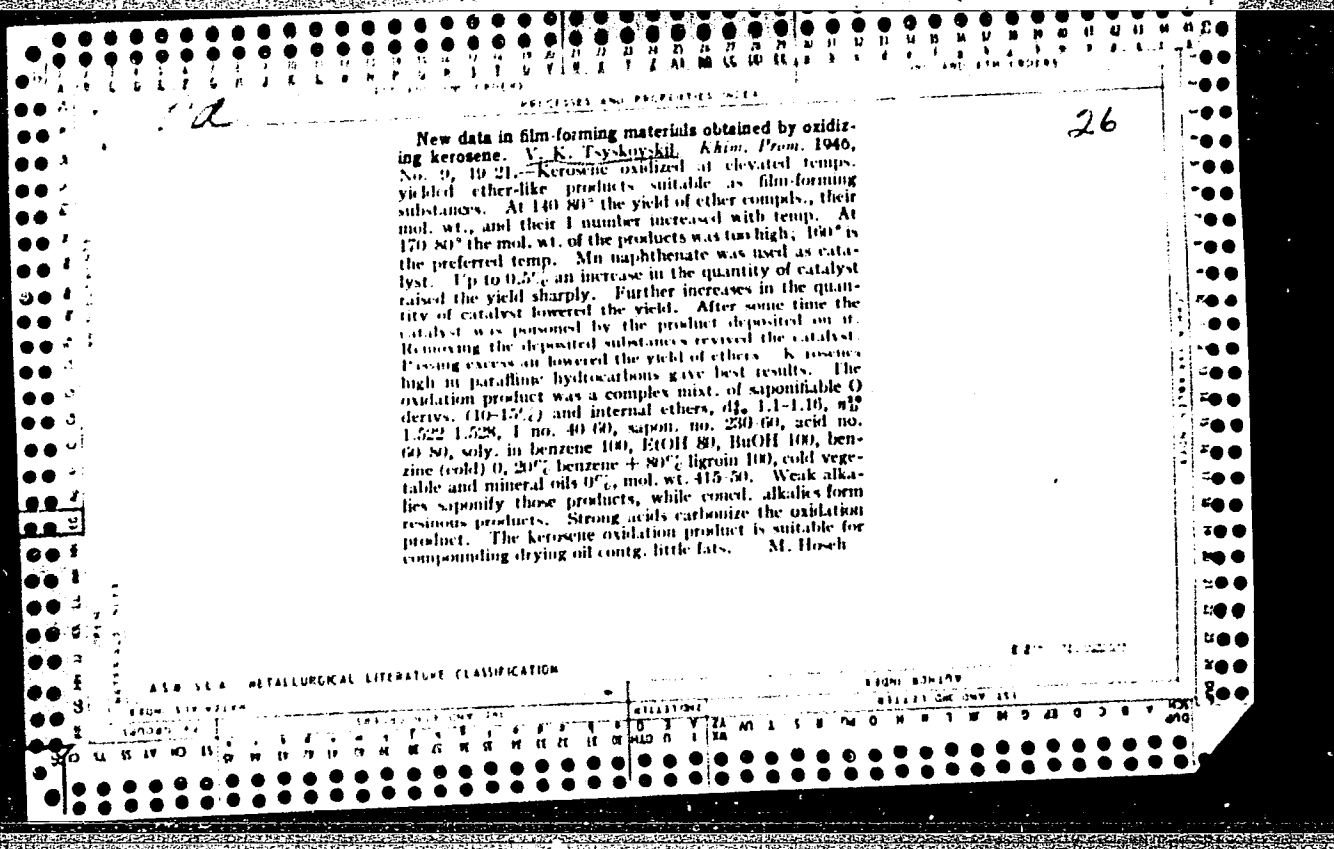
GROUP 7: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

GROUP 8: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

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GROUP 10: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

1ST AND 2ND ORDERS										PROCESSES AND PROPERTIES INDEX									
<div style="position: absolute; top: 10px; left: 10px; font-size: 2em; font-weight: bold;">CA</div> <div style="position: absolute; top: 10px; right: 10px; font-size: 2em; font-weight: bold;">22</div> <div style="position: absolute; top: 200px; left: 300px;"> <p><b>Catalytic oxidation of high-molecular petroleum products.</b> V. K. Tsytkovskii, D. S. Velikovskii, N. I. Chernoshukov, W. M. Rybak, A. I. Shipak, and R. I. Aronov. U.S.S.R. 67,691, Dec. 31, 1940. Petroleum products contg. 3-5% H<sub>2</sub>O and catalyst are blown with a weak current of air at 100-20° for 2-3 hrs. until the water is removed. The mist is treated similarly for another 2 hrs. The air current is increased and the oxidation proceeds at 100° without external heating by virtue of exothermal reaction. The preferred catalyst is a mist. of 1 part of a Mn salt and 3 parts of an acid Ca salt of naphthenic or fatty acids or oxidized petroleum products. M. H.</p> </div>																			
ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION										6 2 1 1 2 1 1 1									
SUBJECT INDEX										AUTHOR INDEX									
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PROCESSES AND PROPERTIES INDEX

22

CA

Synthesis of fatty acids from petrolatum fractions.  
V. Tysskovskiy, J. Applied Chem. (U.S.S.R.) 19, 428  
31(1946). Oxidation of petrolatum by air (no data given  
as to catalysts, temp., or other conditions) leads to produc-  
tion of fatty acids with mol. wt. under 322, regardless of  
the width of fractions of petrolatum used. Increased  
severity of oxidation (no data given) leads to an increased  
acid no. of the product. Ca greases made from such  
acids have a high m.p. (about 80-90°) and have a high  
order of chem. and colloidal stability. G. M. K.

ASSOCIATED METALLURGICAL LITERATURE CLASSIFICATION

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99TH AND 100TH LETTERS

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26

Drying oil substitute. A. Ya. Drinberg and V. K. Tsyskovskii. U.S.S.R. 67,943, Feb. 28, 1947. Naph-  
thenic hydrocarbons are air-oxidized and the oxidation  
product is etherified with pentaerythritol or other poly-  
hydric alc. The etherification product is heated *in vacuo*  
until the desired viscosity is attained. M. Hosh

ASAC-55.4 METALLURGICAL LITERATURE CLASSIFICATION

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26

Oil colophony varnish. A. Ya. Drinberg and A. K. Isakovskii. U S S R. 67,944, Feb. 28, 1961. Kerosene is oxidized and the oxidation product is then treated with a vegetable oil. The product of incomplete etherification is treated with colophony, cooled, to satisfy the free hydroxy radicals of the incomplete ethers. The mixed ethers are either dissolved in a suitable solvent or, prior to their dissolution, fused with a vegetable oil. M. Hosh



1ST AND 2ND CIPHERS																										3RD AND 4TH CIPHERS																									
PROCESSES AND PROPERTIES INDEX																																																			
<p>CA 22</p> <p>Technology of the synthesis of film-forming ester derivatives formed by high-temperature kerosene oxidation. V. K. Tsyrkovskii. <i>Zhur. Priklad. Khim.</i> (J. Applied Chem.) 20, 377-82(1947); cf. C.I. 41, 36380. The oxidation period, depending on the nature of the raw material, is 3-8 hrs.; no polymerization of the kerosene takes place during this interval, and the viscosity of the reaction mass is not much higher than that of the kerosene. The reaction temp. is 160-170°; much kerosene is carried over even when its b.p. is much higher than that. The vol. of kerosene in the fractionating column (of Al. or glass-coated steel) is 3-5 times the charge; the yield is 20-30% per cycle (of the kerosene); it consists of about 70% or more, of high-mol. (3-2.5 times that of the hydrocarbon) internal esters and carboxylic acids, dissolved in the kerosene; the sedimentation, at ordinary temp., takes 8-10 hrs.; the viscosity is high, decreasing at higher temp. A semi-fatty product, sol. in petr. hydrocarbons, is obtained by combining the esters with about 18% of a drying vegetable oil for 4 hrs. at 110°; a non-fatty product is prep. by reaction with glycerol at 130°, and adm. of rosin esters. Schematic diagram is given. Boris Gutoff</p>																																																			
<p>ASB-51A METALLURGICAL LITERATURE CLASSIFICATION</p>																																																			

PA-23T33

TSYSKOVSKIY, V. K.

Aug 1947

USSR/Engineering  
Lubricants - Production  
Paraffin - Oxidation

"Paraffin Oxides as Raw Material for the Production  
of Calcium Containing Lubricants," V. K. Tsykov-  
skiy, 42 pp

"Azerbaydzhan Neft Khozyaystvo" No 8 (254)

Central Laboratory of the Leningrad Oblast Admin-  
istration for GlavNeftSnab carried out experiments  
on the use of oxidized paraffin as a base for lubri-  
cants. Discusses various types of lubricants such  
as leaded naphthalene, Solidol T and Solidol L.  
A new method has been discovered for oxidizing

23T33

Aug 1947

USSR/Engineering (Contd)  
Lubricants - Production  
Paraffin - Oxidation

paraffin where the depth of reaction goes no deeper  
than 7.0 percent. The author claims that the lubri-  
cants thus obtained do not differ from lubricants  
of the commercial grease solids.

23T33

CA 22

Oxidation of petrolatum. V. A. Tyshkovskii. *Izv. Akad. Nauk SSSR Khim. 1947, No. 12, 24-8 (1947).*  
 The importance of 2 of the several factors determining the course and extent of petrolatum oxidation, namely catalyst (quality and quantity) and rate of air flow through the free cross section of the reactor is briefly discussed.  
 M. Hosen

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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TSYSKOVSKIY, V. K.

42381: TSYSKOVSKIY, V. K. I spol'zovanie produktou okisleniya nef'tya-nykh uplevodorodorodnykh smesey. Azerbay dk nef't khoz-vo, 1948, No. 10, s. 14

SO: Letopis' Zhurnal'nykh Statey, Vol. 47, 1948

TSYSKOVSKIY, V. K.

Tsyskovskiy, V. K. "The effect of air speed in the reactor section on the direction of the reaction of the oxidation of kerosene", Azerbaydzh. neft. Khim-vo, 1949, No. 12, p. 22-23.

So: U-3261, 10 April 53, (Letopis 'Zhurnal 'nykh Statey, No.12, 1949).

3

Effect of concentration of active catalyst on the yield of hydroxy acids and their derivatives in the oxidation of kerosine. V. K. Tsyskovskii. *Zhur. Priklad. Khim.* 21, 522 (1949). When the concn. of active catalysts (Mn or Pb naphthenate) in the oxidation of kerosine is increased the yield of high-mol. hydroxy acids and their derivs. reaches a max., then decreases because of the formation of volatile compds. of low mol. wt. Optimum concn. of catalyst ( $K_{opt}$ ) appears to be a const. for a given temp. and is independent of the chem. nature of kerosine and catalyst. The abs. yields of hydroxy acids and their derivs. in the presence of the catalyst in optimum concn. are higher when (a) a more active catalyst is used; (b) carboxylic acids, which are formed during the initial oxidation, participate in the reaction. Higher yields than with one catalyst alone are obtained with a mixt. of two catalysts taken in optimum concn. V. N. Bednarski

TSYSKOVSKIY, V. K.

FA 43/49T27

USSR/Chemistry - Kerosene, Oxidation of Oct 48  
Chemistry - Oxidation

"Effect of Temperature and Time in the Process of  
Oxidation of Kerosene," V. K. Tsyakovskiy, 4 pp

"Zhur Priklad Khim" Vol XXI, No 10

Shows that change of temperature and time of oxidation of kerosene, independently of its chemical and fractional properties, promote regular quantitative and qualitative variations in the oxy acid (hydroxy acid) and its derivatives which result from the reaction. Production of high molecular oxy acids and their derivatives in maximum quantity occur only

43/49T27

USSR/Chemistry - Kerosene, Oxidation of Oct 48  
(Contd)

when determined optimum temperature and time of oxidation are maintained. Submitted 20 Oct 47.

43/49T27

*Oxidation of Narrow Fractions of Kerosene. (In Russian.) V. K. Tsyskovskii. Zhurnal Prikladnoi Khimii (Journal of Applied Chemistry), v. 22, Apr. 1949, p. 409-413.*

Presents results of extensive investigation of the above. Data are tabulated.



CA

22

The influence of the cation that is part of quasi-heterogeneous catalysts upon the oxidation of kerosine. V. K. Tsykuvskii, *Zhur. Priklad. Khim.* 23, 751 8; *J. Applied Chem.* 1950, 23, 707 201 (1950) (Engl. translation). The catalytic oxidation of kerosine to produce internal esters of hydroxycarboxylic acids as the desired by-product was carried out in the presence of naphthenates of Mn, Fe, Co, Cu, Ba, and Pb as catalysts. The naphthenates were obtained from pure naphthenic acids of 218.4 achi no. and dissolved in the kerosine. Manganese naphthenate and Pb naphthenate gave the best results. With Fe and Co naphthenates the secondary oxidation reaction proceeds too far and large amounts of tar, carbokids, etc., are formed as sludge. The ratio of optimal concns. of the cations varies directly with their at. wts. In each instance, the curve obtained by plotting the yield of ester acids against catalyst concn. is a parabola.

B. C. Metzner

22

CA

Mechanism of the action of colloidal quasi-heterogeneous catalyst in the process of liquid-phase oxidation of kerosine fractions. V. K. Tsyshovskii and N. A. Kiseleva. *Zhur. Priklad. Khim.* (J. Applied Chem.) 23, 1001-6(1950); cf. C.A. 46, 4207a.—A colloidal Mn naphthenate catalyst in kerosine was prepd. by exchange of  $MnSO_4$  with an equiv. amt. of Na salts of a redistd. naphthenic-acid fraction of acidity 231.3 mg. KOH/g., free from hydrocarbons and mineral impurities. The kerosine fraction used had b. range 180-310° and the compn. was alkanes 49.70, cycloalks 31.63, aromatic compds. 18.38%. A const. stream of air was passed through 250 g. of the substrate with 0.16, 0.12, 0.08, and 0.04% catalyst, and the change of color was recorded with a photoelec. cell. The absorption of light increases first slowly, then very rapidly, up to a point beyond which it remains const. for a while, and then decreases. By microscopic examn., no changes are noticeable in the reaction mist, up to the max. of absorption; at that point, cryst. particles of 3-8  $\mu$  diam. begin to appear, and increase in size. The max. of absorption of light is thus shown to correspond to a transition of the catalyst from the colloidal to the cryst. state. The period during which the catalyst is in the colloidal state is termed the period of primary state of the catalyst. That period is shorter, the higher is the amt. of the catalyst, and the higher is the temp.; between 110 and 150°, the time necessary for the Mn content of the mist. to fall to the very low 0.0073%, decreased from 217 to 20 min. On the other hand, that "period of primary state of the catalyst" is independent of the velocity of the air

stream and the consumption of  $O_2$ . The acidity of the mist. increases continuously from the very beginning, but rapid increase of the acidity sets in only after the catalyst has gone over into the cryst. form and has begun to ppt. Peroxides begin to appear in the kerosine only some time after the transformation of the catalyst. The period of primary state of the catalyst is therefore an induction period of the oxidation reaction. . . . . N. Thon

CA

24

The mechanism of the action of colloidal quasi-heterogeneous catalysts in the process of liquid-phase oxidation of kerosene fractions. V. K. Tsyrkovskii and N. A. Kisel'eva. *J. Applied Chem. U.S.S.R.* 23, 1050 (1950) (Engl. translation) -- See *C.A.* 46, 4777g. H. R. 1

2

Passage of the catalyst into the heterogeneous state and the causes underlying that phenomenon. N. B. Tsytovskii and N. A. Kiseleva. *Zhur. Priklad. Khim.* (1953) 26, 527-31 (1953). — Kerosene fractions of different group composition were oxidized in the presence of the same catalyst, acid Mn naphthenate, at the same concentration and the period ( $\tau$ ) of primary state of the catalyst (cf. *Ibid.* 23, 1001-6 (1950)). C.A. 43, 7218a) was determined calorimetrically. The length of  $\tau$  depends on the group composition of the substrate; it is longer, the greater is the amount of aromatic compounds in the kerosene. This effect is attributed to the oxidation-inhibiting action of phenols formed through the oxidation of aromatic compounds. Passage of the catalyst from the primary to the heterogeneous state was observed also with naphthenates of Co, Fe, and Ni. Experiments and analysis of the catalyst after its passage into the heterogeneous state revealed changes of the chemical composition of the organic part of the catalyst. The major part of the transformed Mn catalyst consists of  $H_2O$ -sol. low-mol. org. salts of Mn. The  $H_2O$ -insol. acids having in particular a much lower acid no. In infrared, appearance of carbonyl groups, absent during the period of the primary state of the catalyst, characterizes the passage from the quasi-heterogeneous to the heterogeneous state. The change in the nature of the catalyst is the result of the formation, in the 1st stages of the oxidation, of low-mol. org. acids which then react with the catalyst. This point of view is also in accord with the observed shortening of  $\tau$  in substrates of lower mol. wt.

CH

CA

2

The passage of the catalyst into a heterogeneous state  
and the causes underlying that phenomenon. V. K. Tay-  
skovskii and N. A. Kiseleva. *J. Applied Chem. U.S.S.R.*  
24, 577-81 (1951) (Engl. translation).—See *C.A.* 46, 5114f.  
H. R.

USSR/Chemistry - Petroleum

Jun 51

"Kinetics of Oxidation of Cyclanes in the Liquid Phase in Presence of Alkanes," V. K. Tsyskovskiy, P. V. Lukhamanova

"Zhur Prikl Khim" Vol XXIV, No 6, pp 652-657

In catalytic oxidation of complex mixt of cyclanes and alkanes, cyclanes react at increased rate with  $O_2$  of air. Speed of oxidation of cyclanes is directly proportional to initial concn of cyclanes in mixt. Due to higher speed of oxidation, more secondary products are formed. Liberation of molecular  $H_2O$ , observed in oxidation of large quantities of

183T50

USSR/Chemistry - Petroleum (Contd)

Jun 51

cyclanes, is due mainly to condensation of hydroxy-acids with formation of esters. At certain mol wt of cyclanes, with max formation of esters, no hydroxy-acids may be formed.

TSYSKOVSKIY, V. K.

183T50

TSYSKOVSKIY, V. K.

183T51

USSR/Chemistry - Petroleum

Jun 51

"Development of Oxidation After Removal of the Catalyst From the Reaction Medium," V. K. Tyskovskiy, N. A. Kuseleva

"Zhur Prik Khim" Vol XXIV, No 6, p 672

On basis of results obtained in liquid-phase oxidation of kerosene, idea of colloidal quasi-heterogeneous catalysts as substances forming intermediate products with O<sub>2</sub> of air and remaining chemically unchanged until end of oxidation reaction is obsolete. Catalyst, if it does form intermediate products with O<sub>2</sub> of air, does so only during initial stage of

183T51

USSR/Chemistry - Petroleum (Contd)

Jun 51

reaction, which is infinitesimally short as compared to total duration of reaction. Initial stage of oxidation reaction proceeds catalytically, then goes on autocatalytically with definite chain characteristics.

183T51

CH 22

Conditions that stimulate the formation of carboxylic acids in oxidation of kerosene fractions. V. K. Tsyrykovskii and Ts. N. Shebeglova. *Zhur. Priklad. Khim.* (J. Applied Chem.) 24, 1084-9(1951); cf. *C.A.* 43, 7218a. Under best conditions it is possible to oxidize the kerosene cuts to a mixt. of acids contg. up to 92%  $\text{RCO}_2\text{H}$ . Relatively high alkane content of the raw material and low cyclopentadiene content favor good conversion to  $\text{RCO}_2\text{H}$ . The best results (about 91% acids) are obtained from cuts of av. mol. wt. about 215; mol. wt. of 145 gives but 2.6%  $\text{RCO}_2\text{H}$ , and intermediate values are obtained from intermediate cuts. Best catalyst concn. is about 0.02%; higher concns. raise the yield of hydroxy acids. Rapid air flow is desirable (best 12.0 cm./sec.) and a 3-hr. reaction period is best for the same reason.

G. M. Kosolapoff



TSYSNEVSKIY, V.K.

Irrigation

Results of the transition to a new irrigation system. Gidr. i. mel., no. 1, 1952.

9. Monthly List of Russian Accessions, Library of Congress, MARCH 1952 ~~1953~~ Uncl.

TSYSHEVSKIY, V. K.

Irrigation

Successfully concluding the reconstruction of an irrigation network in 1952 in connection with transition to a new irrigation system. Gidr.i mel. 4 no. 9, 1952.

Monthly List of Russian Accessions, Library of Congress, December 1952. Unclassified

TSYKOVSKIY, V. K.

183T40

USSR/Chemistry - Catalysis

May 51

"Transition of a Catalyst Into the Heterogeneous State and the Causes of This Phenomenon," V. K. Tsykovskiy, N. A. Kiseleva

"Zhur Prik Khim" Vol XXIV, No 5, pp 527-531

High-mol Mn, Co, Fe, and Ni naphthenate catalysts of liquid-phase oxidation of kerosene fractions are destroyed in earliest period of oxidation by low-mol acids formed in reaction. Org salts in quasi-heterogeneous state, pos catalysts which effectively accelerate oxidation, exist in oxidizable substrate until they become heterogeneous through action of low-mol acids.

183T40

TSYSKOVSKIY, V. K.

USSR/Chemistry - Chem Engineering,  
Oxidation

Jan 52

"Calculation of Cooling Surfaces of Columns for  
Oxidation of Kerosene Fractions," V. K. Tayskov-  
skiy

"Zhur Prik Khim" Vol XXVI, No 1, pp 98-101

Carries out steps in calcn of cooling area required  
for oxidation column cooled by external water  
jacket. Concludes that cooling area of oxidation  
columns operating under any regime with any raw  
material can be accurately calcd only when accumu-  
lated exptl and practical data provide means to  
obtain a number of calcd relationships.

206T44

TSYSKOVSKIY, V.K., inzhener;

Accumulation of secondary fatty alcohols in the process of paraffin oxidation. Masl.-zhir.prom. 18 no.6:20-21 Je '53. (MLBA 6:6)

1. Tsentral'naya nauchno-issledovatel'skaya laboratoriya tresta "Neftemaslozavody". (Alcohols) (Paraffins)

**"APPROVED FOR RELEASE: 08/31/2001**

**CIA-RDP86-00513R001757320014-1**

**APPROVED FOR RELEASE: 08/31/2001**

**CIA-RDP86-00513R001757320014-1"**

1070 KOVURIP, V.K.

C.A. V-48  
Jan 10, 1954  
Fats, Fatty acids,  
Waxes & Detergents

Chem ①<sup>2</sup>

An apparatus for determination of unsaponifiable matter (content) in synthetic fatty acids. V. K. Tsvskovskii. Masloboino-Zhirovaya Prom. 18, No. 8, 10-21 (1953).—The unsaponifiable matter (I) is sepd. from a water soln. of Na salts of the synthetic fatty acids by Et<sub>2</sub>O extn. in a continuous extn. app. The wt. of I is then detd. either directly after the evapn. of Et<sub>2</sub>O or by means of the acid no. of the fatty acids before and after the extn. of I. The method is accurate within less than 2%. V. N. K.

AF  
9-14-74

TSYSKOVSKIY, V.K.

TSYSKOVSKIY, V.K.; KENDRINSKIY, V.V., redaktor; YASHCHURZHINSKAYA, A.V.,  
redaktor; SOKOLOVA, Ye.V., tekhnicheskii redaktor

[Derivation of synthetic acids through oxidation of kerosene  
fractions] Poluchenie iskusstvennykh kislot okisleniem kerosino-  
vykh fraktsii. Leningrad, Gos. nauchno-tekhn. izd-vo neftianoi  
i gorno-toplivnoi lit-ry, Leningradskoe ote-nie, 1954. 206 p.

(MLRA 7:9)

(Chemistry, Organic--Synthesis) (Kerosene)



TSYSKOVSKIY, V.K.

The role of metal in initiating oxidation reactions in petroleum hydrocarbons. Izv. AN Azerb. SSR no.12:31-36 D'54. (MLRA 8:11)  
(Hydrocarbons) (Catalysts)

**"APPROVED FOR RELEASE: 08/31/2001**

**CIA-RDP86-00513R001757320014-1**

**APPROVED FOR RELEASE: 08/31/2001**

**CIA-RDP86-00513R001757320014-1"**

TSYSKOVSKIY, V. K.

USSR.

Production of higher fatty acids by oxidation of liquid paraffin. V. K. Tsykovskiy, T. N. Shcheglova, S. G. Solten, and B. G. Briddin. *Masloboino-Zhirovaya Prom.* 20, No. 3, 17-20(1955).—The yield of desirable synthetic fatty acids (I) obtained by the oxidation of liquid paraffins at 125° with Mn naphthenate as a catalyst is materially increased by the use of a continuous process instead of the batch method. Undesirable hydroxy acids are destroyed during the subsequent heating at 326° in the fractionation process. Vladimir N. Krukovsky.

MA 51

TSYSKOVSKIY, V.K., inzhener, laureat Stalinskoy premii.

Synthetic fats and oils. Nauka i zhizn' 22 no.12:21-22 D '55.  
(Oils and fats) (Acids, Fatty) (MLRA 9:2)

TSYSKOVSKIY, V., inzhener, laureat Stalinskoy premii

Artificial fats. Tekh. mol. 23 no. 9:11-12 S'55. (MLRA 8:12)  
(Oils and fats)

AID P - 3579

Subject : USSR/Chemistry

Card 1/1 Pub. 152 - 16/20

Author : Tsyskovskiy, V. K.

Title : ~~Some aspects of the mechanism of oxidation of paraffins~~

Periodical : Zhur. prikl. khim., 28, 7, 772-775, 1955

Abstract : A critical survey of the literature on the oxidation of paraffins is given, in particular of the work of W. Langenbeck and Pritzkow. According to Soviet sources, the decomposition of the intermediate products cannot proceed according to the course outlined by W. Langenbeck. Eight references, 6 Russian (1947-1953).

Institution : None

Submitted : S 2, 1954

TSYSKOVSKIY, V.K.; SHCHEGLOVA, TS.N.; NEBYLOVA, Ye.M.

Normal-structure liquid paraffins as raw material for the synthesis of higher fatty acids. Khim.i tekhn.topl.no.6:9-14 Je '56.(MLRA 9:9)

1.Leningradskiy nauchno-issledovatel'skiy institut.  
(Acids, Fatty) (Paraffins)

**"APPROVED FOR RELEASE: 08/31/2001**

**CIA-RDP86-00513R001757320014-1**

**APPROVED FOR RELEASE: 08/31/2001**

**CIA-RDP86-00513R001757320014-1"**



BRODSKAYA, N.I., kand. khim. nauk; TSYSKOVSKIY, V.K., inzh.

Method of determining the content of individual low fatty acids  
in acid wash water. Masl.-zhir. prom. 23 no.8:28-30 '57. (MIRA 10:12)

1. Leningradskiy nauchno-issledovatel'skiy institut.  
(Acids, Fatty)

TSYSKOVSKIY, V.K., kand.tekhn.nauk; NEBYLOVA, Ye.M.

Joint manufacture of higher fatty alcohols and acids from the  
continuous oxidation of liquid n-paraffins. Masl.-zhir. prom.  
23 no.9:30-33 '57. (MIRA 10:12)

1.Leningradskiy nauchno-issledovatel'skiy institut.  
(Paraffins) (Fatty acids) (Alcohols)

15y5KerSA.Y V.K.

USSR/Physical Chemistry - Kinetics, Combustion, Explosions, Topo-chemistry, Catalysis.

B-9

Abs Jour: Referat. Zhurnal Khimiya, No 3, 1958, 7211.

Author : V.K. Tsyskovskiy, Ye. M. Nebyvalova, Ts. N. Shcheglova.

Inst :

Title : Kinetic Regularities at Oxidation Reaction of Liquid Paraffin Hydrocarbons.

Orig Pub: Zh. prikl. khimii, 1957, 30, No 3, 493-497.

Abstract: At the oxidation of a fraction of artificial liquid fuel (of the mean empirical formula  $C_{15}H_{32}$ ) at 120 to 150° in presence of 0.03% of Mn naphthenate, the yield of aliphatic acids containing over 10 C atoms drops with the rise of the temperature and the duration of time, during which the produced acids remain in the reaction zone. The authors consider it necessary shortly to reduce the duration of time,

Card : 1/2

-16-

ACCESSION NR: AT4010621

S/3051/63/000/000/0438/0444

AUTHOR: Tsy\*skovskiy, V. K.; Freydin, B.G.

TITLE: Catalyzed oxidation of n-tetradecane in the liquid phase

SOURCE: Kataliticheskiye reaktsii v zhidkoy faze. Trudy\* Vsesoyuznoy konferentsii. Alma-Ata, 1963, 438-444

TOPIC TAGS: catalyst, catalytic oxidation, oxidation, n-tetradecane, naphthene, naphthenate, tetradecane, aromatic hydrocarbon

ABSTRACT: Mn-napthenate (0.03% at 125, 140, and 155C) and its mixture with K-napthenate at 125C were used as catalysts in the oxidation of n-tetradecane, the kinetics of which are presented in time curves for the reacted hydrocarbon. The accumulated hydroxyl-, carbonyl-, carboxyl-, and ester radicals are discussed and the products characterized. The curves show that at all temperatures the proportion of alcohols and ketones in the product decreases and the proportion of acids and esters increases as the oxidation progresses. A rise of the reaction temperature within 125-155C increases the proportion of ketones and decreases that of acids in the product. The product contains 18-32% alcohols, 8-49% ketones, 5-38% acids, and 17-32% esters as 5 to 70 mol%.

Card 1/2

ACCESSION NR: AT4010621

of the hydrocarbon oxidizes. The shift in reaction direction may be explained by a direct oxidation of alcohols to acids without intermediate ketone formation in the presence of the catalyst. The authors conclude that the action may be only triggering or both triggering and catalytic, depending on the particular metal with variable valence. Orig. art. has: 1 graph, 2 tables, and 3 chemical formulas.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut neftekhimicheskikh protsessov (All-Union Scientific Research Institute of Petrochemical Processes)

SUBMITTED: 00

DATE ACQ: 2 Jan 64

ENCL: 00

SUB CODE: GC

NO REF SOV: 014

OTHER: 005

Card 2/2

SOV/65-58-12-12/16

AUTHOR: Tsyskovskiy, V. K.

TITLE: The Preparation of Concentrated Solutions of  $C_1 - C_4$  Acids (Polucheniye kontsentrirrovannykh rastvorov kislot  $C_1 - C_4$ )

PERIODICAL: Khimiya i Tekhnologiya Topliv i Masel, 1958, Nr 12, pp 52 - 55 (USSR)

ABSTRACT: Acidic effluents contain low-molecular acids which range from formic to butyric acid. The largest quantity of these effluents result during the following stages of synthetic acid production: (1) the washing of the oxidate with NaOH solutions, before saponification; (2) the decomposition of soap paste with  $H_2SO_4$ ; (3) the washing of fatty acids which are separated from the soap paste; (4) the distillation of the fatty acids. Pure low-molecular fatty acids cannot be obtained during azeotropic distillation, selective purification or filtration because very large quantities of effluents have to be treated. More than 70% of  $C_1 - C_4$  acids were contained in the mother liquor which is obtained during the decomposition of the soap paste. Table 1 gives comparative data of the required amounts of reagents (in tons per 1 ton of  $C_{10} - C_{20}$  acid fractions

Card 1/4

SOV/65-58-12-12/16

The Preparation of Concentrated Solutions of  $C_1 - C_4$  Acids

The layout of an industrial plant for obtaining acid distillates in which the  $C_1 - C_4$  acids are contained in very high concentration is shown in Fig.1. The various stages of this process are described in detail. The content of dry soap in the soap paste should not exceed 40%. Soap generally contains a mixture consisting of 70% higher and 30% lower fatty acids. The amount of bound sodium in the soap determines the yield of sodium sulphate which in the mother liquor should not exceed 30%. The soap paste is then decomposed with 98%  $H_2SO_4$  and then centrifuged to separate the acids from the mother liquor. After this operation the higher fatty acids still contain a small quantity of water and of lower acids. During the centrifuging the sodium sulphate and  $H_2SO_4$  are separated and pass into the mother liquor. The approximate composition of this mixture is given. The mother liquor contains, after centrifuging, lower acids, sodium sulphate and water soluble neutral organic compounds. After heating under pressure to  $165^{\circ}C$ , the mixture is evaporated and the dry sodium sulphate separated. Water vapour and vapours of lower fatty acids condensed in the form of an acid distillate containing

Card 2/4

SOV/65-58-12-12/16

The Preparation of Concentrated Solutions of  $C_1 - C_4$  Acids

9 - 13%  $C_1 - C_4$  acids are mixed with the acid distillate and with the aqueous condensate (from the oxidation columns), and then undergoes further processing. The sulphate is separated in its anhydrous form which is sufficiently pure for further industrial use. The distillate, obtained during the oxidation of liquid paraffins, is then subjected to azeotropic distillation or solvent extraction. The increased consumption of reagents during this process is compensated by the fact that industrially improved products can be separated which hitherto could not be prepared or used. The heat consumption of this process can be lowered by possible further concentration of the distillate. By using this process, it is possible to increase the yield in both the acid distillate (up to 60%) as well as in the total distillate (up to 16%). The method can also be used for the oxidation

Card 3/4



SOV/65-58-12-12/16  
The Preparation of Concentrated Solutions of  $C_1 - C_4$  Acids

of solid paraffins. There are 1 Figure and 2 Tables.

USSR Certificate No. 581072 dated 13th September, 1957.  
V. K. Tsyskovskiy, I. N. Shcheglova, A. I. Levin, V. V.  
Sredin.

ASSOCIATION: LenNII

Card 4/4

TSYSKOVSKIY, V.K., kand.tekhn.nauk

Physicochemical properties of saturated fatty acids. Masl.-zhir.  
prom. 24 no.1:25-30 '58. (MIRA 11:3)

1.Leningradskiy nauchno-issledovatel'skiy institut.  
(Acids, Fatty)

TSYSKOVSKIY, V.K.

Basic theories and practices of continuous oxidation of short  
chain paraffins in liquid phase. Zhur.prikl.khim. 31 no.3:440-452  
Mr '58. (MIRA 11:4)  
(Hydrocarbons) (Oxidation)

SOV/64-59-3-6/24

5(3)

AUTHOR:

Tsyskovskiy, V. K.

TITLE:

Synthesis of Higher Fatty Acids and Alcohol According to the Continuous Liquid-phase Oxidation of n-Paraffins With Short Chain (Sintez vysshikh zhirnykh kislot i spirtov nepre-ryvnym zhidkofaznym okisleniyem n-parafinov s korotkoy tsep'yu)

PERIODICAL: Khimicheskaya promyshlennost', 1959, Nr 3, pp 21 - 29 (USSR)

ABSTRACT:

This investigation was carried out by the working Collective - Ye. M. Nebylova, Ts. N. Shcheglova, B. G. Freydin, A. I. Levin (VNIINKh) and V. V. Sredin, Ye. I. Lur'ye (Lengiprogaz). The synthesis of higher fatty acids (I) is carried out by oxidizing high-molecular paraffins (19-36 carbon atoms), as up to now no other method has been suggested. The possibility of this synthesis, using paraffin hydrocarbons with shorter carbon chains (II), has been known for a long time (Refs 2-4), although their oxidation could only be carried out practically after a method was found in the reaction area for the continuous removal of (I) (Ref 5). In the explanation of the formation kinetics of intermediate products of the reaction, it is pointed

Card 1/4

Synthesis of Higher Fatty Acids and Alcohol According to the Continuous Liquid-phase Oxidation of n-Paraffins With Short Chain

SOV/64-59-3-6/24

out among other things that it is wrong to suppose (Ref 6) that the decomposition products of secondary alkylhydroperoxides (compounds with an -O-O-H group) are ketons. An example of n-pentadecane oxidation shows that at first fatty alcohols are developed (III) (Fig 1) and that it is only with an increased reaction intensity that the development of carbonyl compounds is increased. Mixtures of primary and secondary alcohols were found (Table 1) and the development of primary alcohols in case of a catalytic oxidation of n-dodecane in liquid phase was examined (Table 2). It is stated that the (I) always has its maximum molecular weight (MW) in the moment of its development from alcohols, and that the (I) with the longest radical chain are least stable for another oxidation. They split into homologues with a lower (MW) or into dicarbonic acid. The experimental results and observations proved the possibility of a synthesis of (I) and (III) of (II), in doing so it is necessary to prevent a peroxidation. A scheme of reaction is given (Fig 5) corresponding to the experimental data. The effect of catalysts is explained and it is pointed

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Synthesis of Higher Fatty Acids and Alcohol According to the Continuous Liquid-phase Oxidation of n-Paraffins With Short Chain

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out that a metal catalyst is not necessary. The temperature does not exert as great an influence on the continuous oxidation as it does on the discontinuous oxidation. In co-operation with the Azerbaydzhanskiy nauchno-issledovatel'skiy institut (AzNIIPP) (Azerbaydzhani Scientific Research Institute (AzNIIPP)) and the Moskovskiy neftepererabatyvayushchiy zavod (Moscow Petroleum Refining Works) it was found out that liquid paraffins, developing during the process of deparaffining diesel oils by means of urea (values given), can serve as raw materials for the above mentioned synthesis. The VNIINP worked out a method of refining this raw material. The working conditions are given, as well as the scheme of the unit for transforming liquid paraffins  $C_5 - C_{20}$  into (I) (Fig 8). Results of an oxidation of paraffins of the normal structure ( $C_{13} - C_{21}$ ) carried out on the mentioned device, are also given (Table 5) as well as composition and properties of the produced fatty acids (Tables 6,7) and the soaps manufactured of them (Table 8). The production of primary alcohols of fatty acids developed

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Synthesis of Higher Fatty Acids and Alcohol According to the Continuous Liquid-phase Oxidation of n-Paraffins With Short Chain SOV/64-59-3-6/24

according to the above described method is also dealt with in brief, and it is mentioned that the sulphurization of that alcohol mixture develops sodium alkylsulphates (IV) which according to the investigations of the VNIIZh possess good washing properties. A material balance is given of the (IV) and (I) produced in the continuous oxidation of liquid paraffins according to the described method. There are 8 figures, 9 tables, and 29 references, 14 of which are Soviet.

ASSOCIATION: VNIIneftekhim (VNIIneftekhim)

Card 4/4

TSYSKOVSKIY, V.K., kand.tekhn.nauk

On the article "Continuous oxidation of paraffin in a foamy state".  
Masl.-zhir.prom. 25 no.1:32 '59. (MIRA 12:1)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut neftyanoy  
khimii.

(Paraffins)

(Oxidation)



TSYSKOVSKIY, V.K., kand.tekhn.nauk; NEBYLOVA, Ye.M., inzh.; NAZAROVA, S.S.

Latest development in the preparation of primary alcohols and their derivatives by the direct oxidation of short-chain n-paraffins. Masl.-zhir.prom. 25 no.12:16-20 '59.

(MIRA 13:4)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut neftyanoy khimii.  
(Alcohols) (Paraffins) (Oxidation)

TSYSKOVSKIY, V.K.; SHCHEGLOVA, TS.N.

Optimum composition of liquid paraffins as a raw material for  
the synthesis of higher fatty acids. Azerb.neft.khoz. 38 no.1:  
37-39 Ja '59. (MIRA 12:4)  
(Paraffins) (Acids, Fatty)

PHASE I BOOK EXPLOITATION

SOV/4907

Tsyskovskiy, Viktor Karlovich

Sintez zhirnykh kislot i spirtov okisleniyem zhidkikh parafinov  
(Synthesis of Fatty Acids and Alcohols by Oxidation of Liquid  
Paraffins) Leningrad, Goskhimizdat, 1960. 143 p. Errata slip  
inserted. 5,000 copies printed. Ed.: S. A. Zonis; Tech. Ed.:  
T. A. Fomkina.

PURPOSE: This book is intended for scientific and technical personnel in the chemical, petrochemical, and gas industry. It may also be used by students in schools of higher education and tekhnikums.

COVERAGE: The book deals with the theoretical and practical principles of a new method for the production of synthetic fatty acids and alcohols by continuous oxidation of liquid paraffins from petroleum. It also describes some newly established principles relating to the mechanism of oxidation of liquid paraffins. The book contains experimental material obtained by the author during 9 years of research. The author

Card ~~1~~/7

# Synthesis of Fatty Acids (Cont.)

SOV/4907

thanks his coworkers Ts. N. Shcheglova, Ye. M. Nebylova, B. G. Freydin, M. I. Levina, V. V. Sredin, and Ye. I. Lur'ye. He also thanks A. A. Vvedenskiy for reading the manuscript. A. B. Terter'yan (deceased), and D. V. Ivanyukov are cited for developing the new method for the production of liquid paraffins. References accompany each chapter.

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Card <del>2</del> /7	

S/064/60/000/004/007/021/XX  
B013/B069

AUTHORS: ~~Tavakovsky, V. K.~~, Levina, M. I., Freydin, B. G.,  
Leont'yeva, V. P.

TITLE: Synthesis of Dicarboxylic Acids by Direct Oxidation of Liquid  
Paraffins With Atmospheric Oxygen

PERIODICAL: Khimicheskaya promyshlennost', 1960, No. 4, pp. 8 - 11

TEXT: A study has been made of the oxidation conditions for liquid paraffins ensuring the formation of an oxidation product with a sufficient content of bifunctional products, among them free and bound dicarboxylic acids. Methods for the precipitation of dicarboxylic acids from the oxidation product have also been studied. The fraction boiling at 240-350°C was chosen, which is isolated in carbamide deparaffination of Diesel fuels (Ref. 8). The system described in Ref. 9 was used for oxidation. The optimum rate of air supply for the oxidation of paraffins to oxy acids had been determined in previous investigations, and had been found to amount to 5.2 cm/sec. Manganese salts of naphthenic acids served as catalysts (Ref.10).

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Synthesis of Dicarboxylic Acids by Direct  
Oxidation of Liquid Paraffins With  
Atmospheric Oxygen

S/064/60/000/004/007/021/XX  
B013/B069

✓  
—

The effect of reaction temperature and reaction time upon the conversion degree of paraffins to oxy acids is illustrated in Fig. 1, and the effect upon the rate of formation of free and bound carboxyl groups is shown in Fig. 2. The range between 130° and 140°C has been found to be most favorable for oxidation. In this range, oxidation takes place at a satisfactory rate, and provides higher yields compared with higher temperatures. Experiments were conducted at 135°C with a view to obtaining better yields of useful reaction products. By an increase of the concentration of oxygen-containing compounds, the hydroxyl number is steadily decreased, while acid and ether numbers are increased. It was found that the yields of dicarboxylic acids referred to the initial paraffin are in no direct relationship to the saponification number of the oxidation product. The yield of dicarboxylic acids rises up to a given oxidation degree. The yield is not increased by a further increase of the oxidation degree. At a hydrolysis temperature of 150°-170°C, the amount of isolated water-soluble acids attains its maximum (Fig. 3). A further increase of temperature reduces the yield due to decomposition of dicarboxylic acids. The quality of acids

Card 2/3

Synthesis of Dicarboxylic Acids by Direct  
Oxidation of Liquid Paraffins With  
Atmospheric Oxygen

S/064/60/000/004/007/021/XX  
B013/B069

isolated at higher temperatures however, is higher both with respect to the ether number and to the content of crystalline acids. The composition of dicarboxylic acids was studied on silica gel by distribution chromatography (Ref. 4). The following provisional data concerning the material balance of the synthesis were obtained for the oxidation of liquid paraffins when the washed-out oxidation product was introduced (residue from hydrolysis): raw dicarboxylic acids: 54.0%; distilled acids: 44.0% (28.0% crystalline and 16.0% non-crystalline). On the basis of the results obtained, the synthesis of dicarboxylic acids by direct oxidation of liquid paraffins in one operation is said to be very promising. There are 3 figures, 5 tables, and 10 references: 6 Soviet.

ASSOCIATION: VNIIneftekhim

Card 3/3

TSYSKOVSKIY, V.K.; LEVINA, M.I.; FREYDIN, B.G.; LEONT'YEVA, V.P.

Synthesis of dicarboxylic acids via the direct oxidation  
of liquid paraffins by atmospheric oxygen. Khim.prom.  
no.4:272-275 Je '60. (MIRA 13:8)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut  
po pererabotke nefi i polucheniyu iskusstvennogo  
zhidkogo topliva.  
(Acids) (Paraffins)



05042

S/064/60/000/006/003/011  
B020/B054

159130 1526, 1153, 1474

AUTHORS: Tsyskovskiy, V. K., Levina, M. I., Novikov, A. S., and  
Dorokhina, T. V.

TITLE: A New Plasticizer for Low-temperature Resistant Rubbers

PERIODICAL: Khimicheskaya promyshlennost', 1960, No. 6, pp. 21-23

TEXT: The presence of polar groups in the structure of butadiene-styrene-  
(CKH(SKN)) and polychloroprene rubbers reduces the flexibility of the  
polymer chains, and makes these polymers useless at  $-40^{\circ}\text{C}$ . Dibutyl  
phthalate (DBP) and dibutyl sebacate (DBS) are most used for SKN rubber  
and nairite; these plasticizers are, however, expensive, and their initial  
substances are difficult to procure. The authors suggested a highly  
efficient, cheaper plasticizer which can be prepared from monocarboxylic  
fatty acids instead of from dicarboxylic acids. The monocarboxylic acids  
 $\text{C}_1 - \text{C}_{20}$  were produced by continuous oxidation of liquid paraffins. The  
acids were allowed to react with diethylene glycol at  $200-220^{\circ}\text{C}$  for  
4-5 hours until no more reaction water was released. The yield in ester

Card 1/3

85642

A New Plasticizer for Low-temperature  
Resistant Rubbers

S/064/60/000/006/003/011  
B020/B054

was 99.5% with reference to the acids. Some ester samples were obtained in this way which were designated as "Ester No. 2" and cost less than half the price of DBP. Vulcanizates with varying plasticizer content were produced from this Ester No. 2 as plasticizer as well as rubber mixtures on the basis of SKN-26<sup>18</sup> and nairite<sup>19</sup> by vulcanization at 143°C for 30-60 min. The results show that Ester No. 2 increases the low-temperature resistance of vulcanizates of SKN-26 to almost double the value as compared with DBP, and makes them nearly equivalent to rubber sorts with DBS plasticizer. Similar results were obtained for nairite. The volatility of Ester No. 2 at 100°C is low. The effect of the plasticizer on the plasticity of nairite mixtures is graphically shown in Fig. 3. A. G. Blok, V. V. Karsayevskaya, and A. I. Gertsovskaya, collaborators of the "Kauchuk" Plant, compared the properties of rubbers made with Ester No. 2 according to works formulas for the production of technical rubber products with those of the corresponding products with the use of the same amount of DBP or DBS. The experimental data showed that the plasticity of the raw mixtures and the physicomachanical properties of the finished products did not differ from each other. There are 3 figures, 5 tables, and 5 references: 4 Soviet and 1 German.

Card 2/3

85642

A New Plasticizer for Low-temperature  
Resistant Rubbers

S/064/60/000/006/003/011  
B020/B054

ASSOCIATION: VNIIneftekhim (All-Union Scientific Research Institute of  
Petroleum Chemistry) V. K. Tsyskovskiy, M. I. Levina,  
NIIRP (Scientific Research Institute of the Rubber Industry)  
A. S. Novikov, T. V. Dorokhina

X

Card 3/3

TSYSKOVSKIY, V.K.; LEVINA, M.I.; NOVIKOV, A.S.; DOROKHINA, T.V.

New plasticizer for frost-resistant rubbers. Khim. prom.  
no. 6:459-461 6 '60. (MIRA 13:11)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut neftyanoy khimii (for TSyskovskiy, Levina) . 2. Nauchno-issledovatel'skiy institut rezinovoy promyshlennosti (for Novikov, Dorokhina).  
(Plasticizers) (Rubber)

FREYDIN, B.G.; TSYSKOVSKIY, V.K.

Catalytic effects in the process of the synthesis of higher fatty acids by the oxidation of liquid paraffin hydrocarbons. Sbor. nauch. rab. Inst. fiz.-org. khim. AN BSSR no.8:138-147 '60.

(MIRA 14:3)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut neftekhimicheskikh protsessov.

(Acids, Fatty) (Paraffins) (Manganese compounds)

TSYSKOVSKIY, V.K.; SHCHEGLOVA, F. TS.

Effect of the oxidation temperature of n-paraffinic hydrocarbons on the direction of decomposition of alkylhydroperoxides. Khim.prom. no.5:325-326 My '61. (MIRA 14:6)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut neftekhimicheskikh protsessov.

(Paraffins) (Peroxide)

TSYSKOVSKIY, V.K.; BOCHAROV, A.A.; SASIN, E.M.

Synthesis of hydroxy acids and their derivatives by the continuous  
oxidation of liquid paraffins. Khim.prom. no.8:642-643 D '60.

(MIRA 13:12)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut neftekhimicheskikh  
protssessov.

(Acids) (Paraffins) (Oxidation)

S/065/61/000/003/004/004  
E194/E284

AUTHORS: Tsyskovskiy, V. K. and Levina, M. I.  
TITLE: The Oxidation of Hydrocarbons by Various Methods  
PERIODICAL: Khimiya i tekhnologiya topliv i masel, 1961, <sup>#6</sup>No. 3, <sub>v.v.</sub>pp. 66-67

TEXT: This is a critical commentary on an article in Khimiya i tekhnologiya topliv i masel, 1960, No. 2, by P. G. Igonin, M. G. Mitrofanov, I. D. Desyatova and V. I. Zavidov. These authors claim that the ratio of oxy-acids to total acids formed during the oxidation of naphthenic hydrocarbons by a continuous procedure is much greater than when an intermittent oxidation procedure is used. This is contrary to many years experience of the present authors and is attributed to defective test procedures. It is suggested that either the acids were incompletely extracted from the oxidized material, or were not thoroughly contacted with alkali. It is also suggested that iron salts may have reached the reaction zone from other parts of the apparatus, and in particular from valves which were not made of stainless steel. There is 1 table. ✓

Card 1/1



S/080/61/034/011/020/020  
D204/D301

AUTHORS: Tsyskovskiy, V.K., Freydin, B.G., and Prokofyev, Ye.K.

TITLE: The action of potassium naphthenate in initiating  
the oxidation of paraffin hydrocarbons

PERIODICAL: Zhurnal prikladnoy khimii, v. 34, no. 11, 1961,  
2586 - 2587

TEXT: The mechanism of the catalytic effect of K naphthenate on the aerial oxidation of a diesel fuel fraction boiling in the range 240-350°C was studied, since little information on this subject can be found in the literature. The experimental methods used were earlier described by Freydin (Ref.1: Zh. P. Kh., 32, 1849, 1959), (Ref. 2: ibid., 31, 881, 1958). Oxidation was first catalyzed by the addition of 0.03 % of Mn naphthenate at 125°C and K naphthenate was added to the reaction mixture (in an amount corresponding to 0.025 % K) 70 minutes after the reaction had started. The rate of oxidation with and without K naphthenate and the nature and rates of formation of the oxidation products were investigated. It was

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The action of potassium naphthenate ... S/080/61/034/011/020/020  
D204/D301

found that K naphthenate sharply increased the rate of oxidation, after a short induction period, by promoting the decomposition of the peroxides formed into free radicals which then reacted with the paraffins. The effects on the rate of formation of alcohols, ketones, carboxylic acids and ethers are briefly discussed and illustrated. By analogy with the work of Dumanskiy et al. (Ref. 4: P.A. Demchenko, A.B. Dumanskiy and L.G. Demchenko, Koll. Zh., 14, 165, 1952), it is believed that the decomposition of peroxides is preceded by the establishment of intermolecular bonds between (a) the methylene groups of the peroxide and the organic salt and (b) the -OOH groups and the K atoms. Formation of such complexes and the consequent electron pair displacements in the -O-O- bonds render the latter more susceptible to thermal fission. The mechanism is thought to apply generally to the action of alkali metal salts of higher organic acids in catalyzing the oxidation of paraffins in the liquid state. The work of M.S. Nemtsov, I.I. Radchenko, and S. L. Fisher (Ref. 6: Khim. nauka i prom., 2, 306, 1957) is quoted in support of this explanation. The catalytic effect of multivalent metals is thought to be due to oxidation-reduction reactions with

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The action of potassium naphthenate ... S/080/61/034/011/020/020  
D204/D301  
the oxidation products. There are 6 figures and 6 Soviet-bloc re-  
ferences.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut nef-  
tekhimicheskikh protsessov (All-Union Scientific-Re-  
search Institute of Petroleum Chemistry Processes)

SUBMITTED: December 16, 1960

Card 3/3

IGONON, P.G., inzh.; SVITKIN, V.V., inzh.; MITROFANOV, M.G., kand.tekhn.nauk;  
SLEPTSOV, Yu.S., inzh.; KOLOZHVARI, A.A., inzh.; PASHENKO, M.A., inzh.;  
ZHIVOLUPOV, M.A., inzh.; Primali uchastiye: MUSHENKO, D.V.;  
TSYSKOVSKIY, V.K.; SHCHEGLOVA, TS.N.; FREYDIN, B.G.; PYL'NIKOV, V.I.;  
LEVINA, M.I.; LEVIN, A.I.; LUR'YE, Ye.I.; BAYKINA, T.A.; UDOVENKO, S.A;  
MARCHENKO, T.A.

Effect of the method of liquid paraffin oxidizing on the yield and  
quality of the obtained fatty acids. Masl.-zhir.prom. 28 no.11:20-23  
N '62. (MIRA 15:12)

1. Groznenskiy nauchno-issledovatel'skiy neftyanoy institut (for  
Igonin, Svitkin, Mitrofanov, Sleptsov, Kolozhvari, Pashenko, Zhivolupov).
2. Vsesoyuznyy nauchno-issledovatel'skiy institut neftekhimicheskikh  
protseessov (for Mushenko, TSyskovskiy, Shcheglova, Freydin, Pyl'nikov,  
Levina, Levin).3. Lengiprogaz (for Lur'ye, Baykina). 4. VNIISINZh  
(for Udovenko, Marchenko).

(Paraffins)

(Acids, Fatty)

L 18850-63

ACCESSION NR: AP3006037

S/0064/63/000/006/0015/0017

AUTHORS: Tsy\*skovskiy, V. K.; Schegoleva, Ts. N.; Nazarova, S. S. <sup>45</sup>

TITLE: Continuous catalytic oxidation of liquid paraffins at an elevated temperature.

SOURCE: Khimicheskaya promy\*shlennost', no. 6, 1963, 15-17

TOPIC TAGS: paraffin, liquid paraffin, continuous oxidation, carbonyl compounds, Mn, K

ABSTRACT: Tsy\*skovskiy, V. K., previously showed the possibility of increasing the reaction rate during the continuous oxidation of liquid paraffins by means of a continuous addition of catalyst. The present article is a detailed study of the specifics of the catalytic reaction during the continuous oxidation of liquid paraffins. Also, the study was made on the possibility of lowering the concentration of carbonyl compounds in the oxide as a means of increasing their rate of oxidation into fatty acids by means of a continuous introduction of catalysts in the form of Mn and K salts. It was found

Card 1/2

L 18850-63

ACCESSION NR: AP3006037

that the continuous introduction of catalytic additions into the oxidizing zone results in a considerable increase in rate of oxide formation, improvement of quality, and increase of distilled acid yields. It was also shown that, at a low level of oxidation of liquid paraffins and an increased temperature, the obtained fatty acids are of high quality which are obtained in maximum yields and at a maximum rate. Orig. art. has: 3 tables.

ASSOCIATION: None

SUBMITTED: 00

DATE ACQ: 11Sep63

ENCL: 00

SUB CODE: CH, PH

NO REF SOV: 007

OTHER: 000

Card 2/2.

TSYSKOVSKIY, V.K.; SHCHEGLOVA, TS.N.; NAZAROVA, S.S.

Continuous catalytic oxidation of liquid paraffins at elevated temperatures. Khim. prom. no.6:415-417 Je '63. (MIRA 16:8)

(Paraffins) (Oxidation)

L 23916-66 EWT(m)/EWP(j) RM

ACC NR: AP6014943

SOURCE CODE: UR/0204/65/005/001/0101/0107

AUTHOR: Tsyskovskiy, V. K.; Bocharov, A. A.; Bayeva, T. Ye. 31

ORG: All-Union Scientific Research Institute of Petrochemical Processes  
(Vsesoyuznyy nauchno-issledovatel'skiy institut neftekhimicheskikh protsessov) 13

TITLE: Production of oxyacids from liquid paraffins 1

SOURCE: Neftekhimiya, v. 5, no. 1, 1965, 101-107

TOPIC TAGS: hydrocarbon, oxidation

ABSTRACT: A one-step process was developed for the production of oxygen-containing acids by continuous oxidation of liquid paraffins. The paraffins used consisted mainly of normal C<sub>14</sub>-C<sub>22</sub> paraffins, in an effort to produce polyfunctional aliphatic compounds with a straight chain and at least 19 carbon atoms in the molecule, which are valuable as chemical intermediates. The basic factors of the process were studied: continuity of the process, influence of temperature, and residence time of the raw material in the reaction zone. The optimum conditions of oxidation, extraction, and indices of the process are presented. The possibility of producing compounds in 90% yield calculated on the basis of the converted liquid paraffins, was demonstrated; the products are obtained 99.6% pure, which makes them valuable intermediates. Orig. art. has: 2 figures and 4 tables. [JPRS]

SUB CODE: 07 / SUBM DATE: 29Apr64 / ORIG REF: 015

Card 1/1 BK

UDC: 661.73:547.47]:66.091:665.521.6-404 2



TSYSKOVSKIY, V.K.

Oxidation of liquid paraffins as one of the trends in their chemical processing. Khim. prom. no.6:420-422 Je '64. (MIRA 18:7)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut neftekhimicheskikh protsessov.

TSYSKOVSKIY, V.K.; SHCHEGLOVA, TS.H.

Effectiveness of the process of oxidation of liquid paraffins to fatty acids at elevated temperatures. Zhur. prikl. khim. 27 no.6: 1324-1328 Je '64. (MIRA 18:3)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut neftekhimicheskikh produktov.

TSYSKOVSKIY, V.K.; BOCHAROV, A.A.; BAYEVA, T.Ye.

Obtaining hydroxy acids from liquid paraffins. Neftekhimiia  
5 no.1:100-107 Ja-F '65. (MIRA 18:5)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut neftekhimi-  
cheskikh protsessov.

**"APPROVED FOR RELEASE: 08/31/2001**

**CIA-RDP86-00513R001757320014-1**

**APPROVED FOR RELEASE: 08/31/2001**

**CIA-RDP86-00513R001757320014-1"**